

# KATRINA

## Watching a Monster Storm

Tropical Storm Katrina developed off the Atlantic coast of Florida on August 24, 2005. When Katrina crossed Florida and entered the even hotter waters in the Gulf of Mexico, the stage was set for its intensification into a monster storm that was the most destructive in U.S. history. Katrina struck the Gulf Coast states as a strong Category 4 hurricane, with sustained winds near 140 mph.

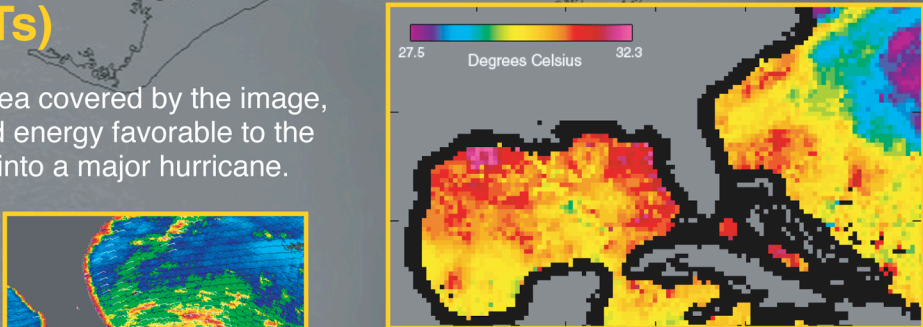
Throughout its life cycle, Katrina was observed by many NASA satellite instruments. Satellite observations of hurricanes are leading to a better understanding of such storms, enabling better predictions of their development and movements.

### Sea Surface Temperatures (SSTs)

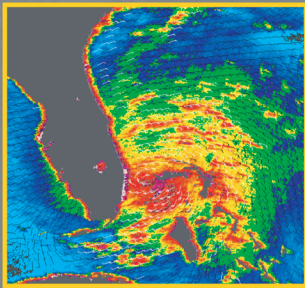
Very warm SSTs averaging 30° C (86° F) within the area covered by the image, and over 30° C in parts of the Gulf of Mexico, provided energy favorable to the development of a tropical storm and its intensification into a major hurricane.

### Wind Fields

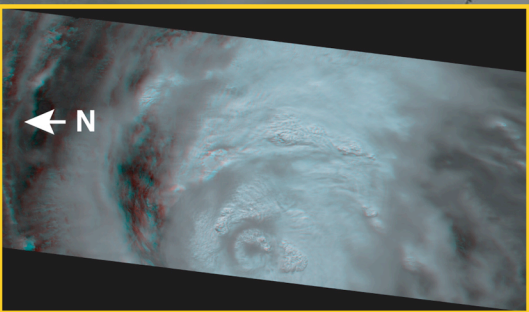
Katrina crossed Florida as a Category 1 hurricane, sparing the state from the extreme damage experienced by Louisiana, Mississippi, and Alabama, with maximum sustained wind speeds of 80 mph (shown in red).



Aqua/AMSR-E 3-Day Average August 23, 2005  
Image Credit: RSS/NASA/Earth Science REASoN DISCOVER Project, AMSR-E Science Team



QuikSCAT/SeaWinds, August 25, 2005  
Image Credit: NASA/JPL QuikSCAT Science Team



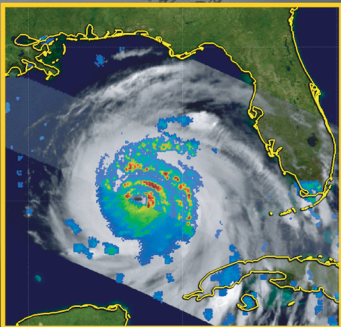
Terra/MISR August 27, 2005  
Image Credit: NASA/GSFC/LaRC/JPL, MISR Team

### Cloud Structure

NASA'S Multi-angle Imaging SpectroRadiometer (MISR) observed the strong convective development of Hurricane Katrina on Saturday, August 27, 2005. This 3-D stereo anaglyph shows relative cloud height variations and enhances the appearance of thin clouds for this rapidly developing major hurricane (Category 3 and higher). MISR stereo retrievals (not shown here) indicate the highest clouds reached a maximum height of 18–19 km.

### Precipitation

NASA's Precipitation Radar and TRMM Microwave Imager observed strong rain bands within the hurricane with the most intense precipitation, 2 in/h, near the eyewall (dark red). Less intense rain bands surrounding the eyewall are shown in yellow (1 in/h) and green (.8 in/h), tapering to blue (0.1 in/h).



TRMM/PR and TMI August 28, 2005  
Image Credit: NASA/JAXA, TRMM Project

### New Orleans Flooding

Katrina caused breaches in several levees protecting New Orleans, resulting in massive flooding that submerged some neighborhoods under 20 feet of water. The population density map emphasizes the large number of people that were living in the areas affected by the inundation. The two Advanced Spaceborne Thermal Emission & Reflection Radiometer (ASTER) images show 15 m resolution views of the city before and after the hurricane passed through the region. The later image was acquired several days after pumping efforts began lowering water levels. Flooded areas appear much darker than they appear in the pre-flood image.

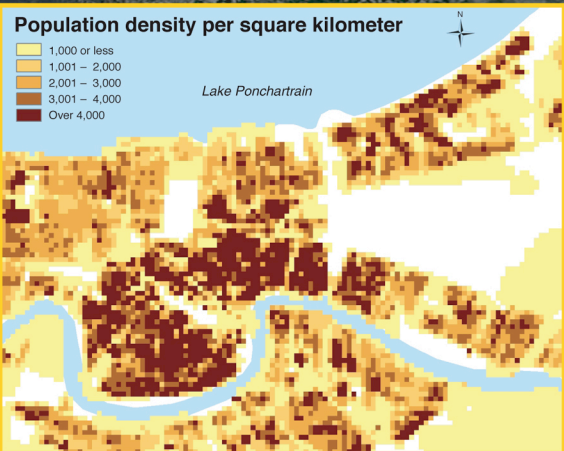


Image Credit: SEDAC: U.S. Population Grids (Summary File 1), 2000

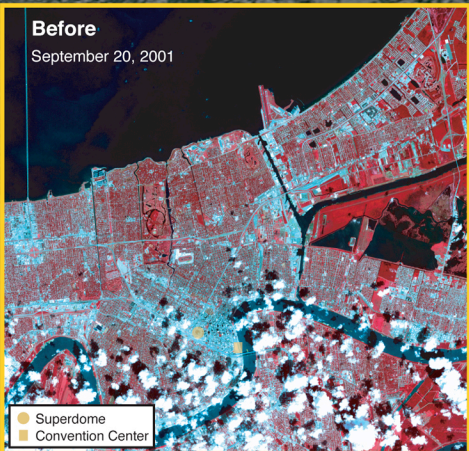


Image Credit: NASA/EOSDIS



Image Credit: NASA/EOSDIS